

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 10/617,872

REMARKS

Review and reconsideration on the merits are requested.

Turning first to ***Election/Restrictions***, Applicants affirm their election of claims 1-4 without traverse.

With respect to ***Drawings***, the necessary petition, fee and three sets of color drawings, etc., are submitted herewith.

Favorable consideration is requested.

Prior art considered: U.S. 6,117,592 Hoshino et al (Hoshino).

The rejection: claims 1-4 are rejected under 35 U.S.C. § 102(b) as anticipated by Hoshino.

The Examiner's reading of Hoshino is set forth in the Action in detail, and will not be repeated here in detail except as necessary to an understanding of Applicants' traversal which is now presented. It is noted, however, that at page 4 of the Action, fourth line from the bottom, the Examiner apparently meant to refer to column 3 (not column 4), lines 25-45.

In traversing, Applicants note that they have amended claim 1 to call for the voids being formed by removing particles for forming voids and said voids of the walls having recesses, projections and pores constituted by the sintered metal powder. Basis occurs at section s[0011], [0063] and [0063] of the specification.

Since the features of the present invention necessary to distinguish the prior art are recited in amended claim 1, Applicants discuss in detail only amended claim 1.

The Examiner is requested to refer to amended claim 1.

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One distinguishing feature of the present invention lies in the fact that the porous sintered metal voids at least partially communicating with each other involve walls constituting the sintered porous voids which are formed with relatively large pores. See the specification at page 3, section [0008] and section [0009] and note especially that amended claim 1 calls for the average diameter of the pores being 1 μm or more when measured by a mercury press-in method.

A further particularly important distinguishing feature of the presently claimed invention is the fact that the porous sintered metal voids having predetermined specific shapes and dimensions can be obtained by removing particles added for forming the voids as such before sintering. As a consequence, void walls with recesses, projections and pores are constituted by the sintered metal powder. See section [0011], lines 2-6, and sections [0010], [0063] and [0064] in the specification.

The Examiner is requested to specifically note that the porous sintered metal voids of the present invention have a BET surface area of $700 \text{ cm}^2/\text{cm}^3$ or more (see amended claim 1) and the average pore diameter of the pores is 1 μm when measured by a mercury press-in method; again, see amended claim 1 and also see section [0009], lines 3-5, in the specification.

Comparing the present invention to Hoshino, Hoshino discloses a porous metallic material having an overall porosity of 80-90% and a skeleton in a three-dimensional network structure which is entirely composed of a sintered metal power having a porosity of 10-60%. The Hoshino product is produced by a process which involves the steps of forming a foamable slurry, forming, dry degreasing, and sintering. The foamable slurry contains a metal powder, a

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water-soluble resin binder, a foaming agent, a surfactant and water. The foaming agent has the ability to form cells by generating a gas such as one from a volatile organic solvent which is liquid at room temperature, forming micelles in the slurry by the action of the surfactant and vaporizing at room temperature or under heating to form fine cells. See Hoshino at column 3, lines 28-40 and column 5, lines 56-65.

In short, the production of the porous metallic material of Hoshino is based on the principle of forming fine cells which are generated by the vaporization of what is typically a water-insoluble organic solvent by heating the solvent under conditions which will result in pore formation, if heating is necessary. For instance, see Table 3 at columns 21 and 22 of Hoshino. Hoshino thereby forms pores at unspecified positions in the three-dimensional skeleton as shown in Fig. 1 of Hoshino, the Hoshino product having a pore size of less than 100 µm, specifically within the range of 60-700 µm, as well as the skeleton having micropores having an average micropore size of 0.5 - 20 µm. See Hoshino at column 3, lines 10-12, column 4, lines 13-20, column 7, lines 59-61, Table 3 at columns 21 and 22 and Figs. 1 and 2 of Hoshino. This is completely different from the present invention which involves a porous sintered metal comprising voids formed by removing particles for forming voids which at least partially communicate with each other and the void walls have recesses, projections and pores, the voids having an average diameter of 1 µm or more, which voids would correspond to the micropores of Hoshino. See sections [0063] and [0064] in view of Figs. 1 and 2 of the present specification, each showing cross sections of samples of Examples 1 and 3, respectively, of the specification.

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Applicants thus respectfully submit that one of ordinary skill in the art, referring to Hoshino, which does not teach or suggest any porous sintered metal comprising voids formed by removing particles for forming voids which at least partially communicate with each other, would not find claim 1 herein to be anticipated.

Accordingly, Applicants submit claims 2-4 to be patentable for the same reasons as claim 1.

Withdrawal of the rejection and allowance is requested.

Respectfully submitted,



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